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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,366	01/13/2004	Franklin W. Dabby	89171.0004	3346

26021 7590 06/06/2006

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EXAMINER
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DUPUIS, DEREK L

ART UNIT	PAPER NUMBER
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2883

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/757,366

Applicant(s)

DABBY, FRANKLIN W.

Examiner

Derek L. Dupuis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 6-8 and 14-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 9-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 3/9/2006 have been fully considered but they are not persuasive.
2. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, motivation would be that Er-Yb-doped waveguides have a significant capacity for large gain per length coefficients which leads to the ability to achieve large gain in compact devices (see page 2 of Lange et al). This motivation was cited in the non-final rejection.
3. In pages 5 and 6 the applicant argues that one of ordinary skill in the art would not be motivated to combine the references because the Yamamoto et al reference teaches away from using Er-Yb doped phosphate glass. The examiner disagrees with this assertion. The applicant points to column 8, lines 28-40 to support this assertion. In this passage Yamamoto et al states that the ions "may exert an adverse influence *as described above*." Column 8, lines 14-25 explain in detail these adverse effects. The specific metal ions with which the reference expresses concern are alkali metals. These include lithium, sodium, potassium, rubidium, cesium, and francium. Er and Yb are not alkali metals. Therefore, Yamamoto et al does not teach away from using Er and Yb doped waveguides.

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4. In pages 6 and 7 applicant argues that the Yammamoto reference does not teach a region of relatively higher index of refraction within the buffer layer. The examiner disagrees with this assertion. In column 19, lines 16-25, Yammamoto et al teach that the buffer layer is a dielectric layer made up of a spin-on-glass layer (SOG) and a phspho-silicate glass layer (PSG). In lines 40-51, Yammamoto teaches that the PSG layer has a relatively higher index of refraction than the SOG layer. Since both of these layers comprise the buffer layer, the limitation of a region of relatively higher index of refraction within the buffer layer is taught.

5. In pages 6 and 7 applicant argues that the Yammamoto reference fails to disclose a light signal tap redirecting a portion or sample of an optical signal that is propagating thought the waveguide. In the claim, only the term “portion” is used. The term portion is defined as a part of a whole. The Yammamoto reference teaches that at least a portion of the signal is detected. Even if the entire signal were detected, then the reference would still meet the claim because at least a portion was detected. If you have the “whole”, you inherently have “a portion” or a part of the whole. The applicant also addresses the limitation of “a light signal tap.” As used in the claim this element is used to direct a coupling signal towards a sensor. Yammamoto clearly teaches coupling a signal to a detector.

6. In response to applicant's argument that Han et al is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the abstract of Han et al discloses that the reference is pertinent to optoelectronics.

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7. In page 8, applicant argues that there is no support that it would be well known in the art to use AlGaAs substrates in opto-electronic devices. Again, the reference discloses in the abstract that the discloses materials can be useful in optoelectronic devices.

8. Claims 1-22 are pending. Claims 1-5 and 9-13 stand rejected. Claims 6-8 and 14-22 stand withdrawn. The rejection has been repeated below and is made FINAL.

***Drawings***

9. The drawings were received on 3/9/2006. These drawings are accepted.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-5, 9, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Yamamoto et al (US 6,078,70)* in view of *Lange et al ("High Gain Short Length Phosphate Glass Erbium-Doped Fiber Amplifier Material" NPL)*.

12. Yamamoto et al teaches an integrated electro-optic circuit comprising a semiconductor substrate composed of a material suitable for use as a detector of a predetermined signal wavelength and an electronic circuit layer positioned on the substrate. The circuit also includes a buffer layer positioned on the circuit layer and a waveguide layer positioned on the buffer layer wherein the waveguide layer is formed of phosphate glass. Yamamoto et al also teach a cladding layer disposed on the waveguide layer where an index of refraction of the waveguide layer is greater than that of the cladding layer and the buffer layer. The electronic circuit layer includes

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an optical sensor for detecting a coupling signal comprising a portion of a photonic communication signal propagating in the waveguide (see column 13, lines 15-65). The circuit also includes a light signal tap for directing the coupling signal towards the sensor. The tap includes a region of the buffer layer that has an increased index of refraction with respect to the index of refraction of the buffer layer (see column 19, lines 1-62). Yamamoto et al teach that the substrate can comprise silicon.

13. Yamamoto et al do not teach that the phosphate glass waveguide layer is doped with an amplifying material. Lange et al teach using Er and Yb to dope a phosphate glass waveguide (see page 2) and that the waveguide can be used to transmit wavelengths between 800 and 1800 nm (see figure 3).

14. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the circuit of Yamamoto et al by using a Er-Yb-doped waveguide as taught by Lange et al. Motivation to do this would be that Er-Yb-doped waveguides have a significant capacity for large gain per length coefficients which leads to the ability to achieve large gain in compact devices (see page 2 of Lange et al).

15. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Yamamoto et al* (US 6,078,70) in view of *Lange et al* ("High Gain Short Length Phosphate Glass Erbium-Doped Fiber Amplifier Material" NPL) as applied to claims 1-5, 9, 10, and 12 above, and further in view of *Han et al* (US2004/0076813 A1).

16. Lange et al teach that the waveguide transmits signals between 1100 nm and 1600 nm. However, neither Yamamoto et al nor Lange et al teach that the substrate comprises gallium aluminum arsenide. Han et al teaches that several different types of substrates can be used in

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optical devices including silicon and gallium aluminum arsenide (see paragraph 15). It would have been obvious to one of ordinary skill in the art at the time of invention to modify the device of Yamamoto et al in view of Lange et al to use a germanium substrate as taught by Han et al since it is well known and routine to use AlGaAs substrates in opto-electronic devices.

17. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Yamamoto et al* (US 6,078,70) in view of *Lange et al* ("*High Gain Short Length Phosphate Glass Erbium-Doped Fiber Amplifier Material*" NPL) as applied to claims 1-5, 9, 10, and 12 above, and further in view of *Harchanko et al* (US 2005/0147925 A1).

18. Yamamoto et al nor Lange et al teach that the substrate is made of germanium. However, Harchanko et al teach that several different types of substrates can be used in optical devices depending on the desired wavelength transmission range including silicon and germanium. Harchanko et al teach that a germanium substrate can be used for wavelengths greater than 2000 nm (see paragraph 48). It would have been obvious to one of ordinary skill in the art at the time of invention to modify the device of Yamamoto et al in view of Lange et al to use a germanium substrate as taught by Harchanko et al since it is well known and routine to use germanium substrates in opto-electronic devices for processing signals with high wavelengths.

### ***Conclusion***

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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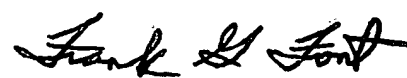
the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek L. Dupuis whose telephone number is (571) 272-3101. The examiner can normally be reached on Monday - Friday 8:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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